

Commonwealth of Australia
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

A NEW MALAYAN SPECIES OF THE ANT GENUS *EPITRITUS*, AND A
RELATED NEW GENUS FROM SINGAPORE
(HYMENOPTERA: FORMICIDAE)

By R. W. TAYLOR

Reprinted from the Journal of the Australian Entomological Society,
Volume 7, pp. 130-134, December 31, 1968

A NEW MALAYAN SPECIES OF THE ANT GENUS *EPITRITUS*, AND A RELATED NEW GENUS FROM SINGAPORE (HYMENOPTERA: FORMICIDAE)

By R. W. TAYLOR*

[Manuscript received April 12, 1968]

Abstract

Epitritus murphyi sp. n. (Rantau Panjang, West Malaysia) and *Dysedrognathus extenuatus* gen. et sp. n. (Bukit Timah, Singapore) are described and figured. Their relationships within the myrmecine ant tribe Dacetini are discussed.

INTRODUCTION

The dacetine ant genus *Epitritus* Emery 1869, in the conceptual sense of Brown 1949, contains three previously described species: *argiolus* Emery (North Africa and southern Europe), *hexamerus* Brown (Japan), and *laticeps* Brown (Nigeria) (see Brown 1949, 1958, 1962—the last reference contains a key to these species). A fourth species, *E. murphyi* sp. n., described here, is the first true *Epitritus* to be recorded from the Oriental region. It should be noted that various other Indo-Australian ant species were originally described in *Epitritus* but have been subsequently allocated elsewhere.†

Epitritus appears superficially to belong in the long-mandibulate section of the subtribe Strumigeniti, which includes several genera centered on *Strumigenys*. Detailed examination of its mandibular and labral structure, however, precludes this allocation and suggests that the genus has been derived independently from a short-mandibulate strumigenite stock near *Smithistruma* (Brown 1949, 1958). In this regard the new genus *Dysedrognathus*, described below, is of particular interest, for it is much more *Epitritus*-like than any other known short-mandibulate strumigenite, and provides a very plausible example of a likely *Epitritus* precursor.

The specimens described here were generously provided by Mr. D. H. Murphy of the University of Singapore. They are part of an excellent collection of Malayan ants gathered by him and deposited with the Australian National Insect Collection.

Epitritus murphyi sp. n.

(Figs. 1-2)

Types.—This description is based on two worker specimens with the following data: WEST MALAYSIA (= MALAYA): *Kelantan*: Rantau Panjang, wet bamboo litter and "main plains" soil, 9.xi.1963 (D. H. Murphy, berlesate No. 126), (*Holotype*). *Selangor*: Gombak, near University of Malaya field station, 9th mile, thin forest litter on steep slope with underlying granular soil, 9.ii.1967 (D. H. Murphy, berlesate No. 322) (*paratype*).

Rantau Panjang, the type locality, is near the Malaya-Thailand border at 5°42'N, 102°20'E, and Gombak is NNE of Kuala Lumpur at 3°14'N, 101°43'E.

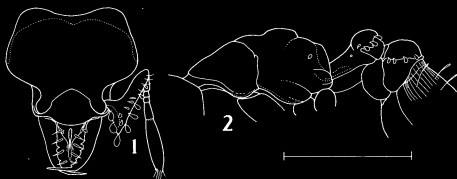
Type deposition.—*Holotype* in Australian National Insect Collection, Canberra (Type No. 7505), *paratype* in Museum of Comparative Zoology, Cambridge, Massachusetts, U.S.A.

Description

The holotype and paratype have the following dimensions (for explanation of abbreviations and definitions of measurements and indices see Brown, 1953: 7-15): TL ca. 2.0, 1.75 mm; HL 0.48, 0.40 mm;

*Division of Entomology, C.S.I.R.O., Canberra, A.C.T.

†These include *E. emmae* Emery (the type species of *Quadristruma* Brown 1949) and its synonyms *E. clypeatus* Szabo, *E. clypeatus* var. *malesiana* Forel and *E. wheeleri* Donisthorpe, along with *E. eurycerus* Emery (now placed in *Quadristruma*) and *E. ellioti* Clark (now in *Colobostruma* [= *Clarkistruma*]). For details see Brown 1948, 1949; Brown and Wilson 1959.



FIGS. 1, 2.—*Epitritus murphyi* Taylor, sp. n., holotype worker: (1) head, frontal view, right antenna and some pilosity omitted; (2) mesosoma, petiole and postpetiole, lateral view. Scale line 0.50 mm.

HW 0.53, 0.45 mm; CI 110, 113; ML 0.20, 0.17 mm; MI 42, 43; WL 0.54, 0.45 mm; scape L (measured from apex of scape to the point of its subbasal angle) 0.27, 0.23 mm; funiculus L 0.40, 0.35 mm. General features as shown in Figures 1 and 2, cephalic outline much as in *E. hexamerus* Brown, but with the cranium relatively broad. Centre of frons feebly convex, sloping at sides to the broadly concave anterior portions of the occipital lobes. Posterior frontal portion of head traversed by a strong obtuse ridge (shown as a dotted line in Fig. 1), behind which the posterior parts of the frons and occipital lobes slope abruptly back towards the occipital border. Mandibles of "inverted" type characteristic of the genus; like those of *E. hexamerus*, but with four pre-apical teeth. Subbasal lobes of scapes well developed, acutely angled at ca 40°. Funiculi 5-segmented, the apical segment slightly longer than the others together.

Pronotal dorsum and anterior part of mesonotum forming an almost circular disc ca 0.6x as wide as head; the two sclerites separated by a shallow transverse sulcus, which joins a weaker median longitudinal pronotal sulcus in a "Y" shaped configuration. Mesonotum saddle-shaped, its posterior portion slightly larger, more inflated and more convex than the anterior part. Propodeal, petiolar and postpetiolar profiles as shown in Figure 2. Petiolar node about 1.3x wider than long, approximately 0.45x as wide as pronotum and 0.7x as wide as postpetiole. The latter transversely ellipsoidal, almost 1.5x as wide as long, and ca 0.6x as wide as gaster. Spongiform appendages massively developed ventrally and laterally on both petiole and postpetiole, with narrow borders along posterodorsal margins of both segments. Gaster with a narrow, almost carinate, transverse anterodorsal spongiform margin, and a small thin anteroventral flap.

Body and appendages, except postpetiole and gaster, fairly evenly and finely granulosly sculptured and non-reflective. Postpetiole dully shining, irregularly and very finely punctate. Gaster generally smooth and shining, its dorsum with coarse basal longitudinal costulation extending about 0.25x the length of the first tergite.

Head with specialized pilosity of orbicular hairs, as in other *Epitritus* species, but these are relatively small (about 0.02 mm long) and less abundant than usual, being restricted to the convex median portion of the frons. Clypeus with minute bristle-like hairs posteriorly, grading to orbicular hairs on its anterior surfaces. Inner mandibular borders each overlain by five conspicuous linear-spatulate hairs which lie across the basal teeth; a pair of similar hairs on anterior clypeal border (Fig. 1). Pilosity of scapes as figured. Specialized pilosity entirely lacking on mesosoma. Petiole and postpetiole with a few small orbicular hairs along anterodorsal edges of their lateral spongiform masses (Fig. 2). Dorsum of gaster with scattered, erect, narrowly clavate hairs about 0.05 to 0.08 mm long. These number approximately 25 on the holotype and about 20 on the smaller paratype; they are scattered irregularly on the first tergite of the holotype, but are more regularly arranged on the paratype, to form three transverse and four longitudinal rows. Second and third gastral tergites of both specimens each with a single transverse row of similar but smaller hairs. Colour fairly even light-medium ferruginous, vestiture pale ferruginous.

The holotype and paratype are closely similar in all features except those noted above.

Comments

Epitritus murphyi is easily distinguished among the known species of its genus. *E. argiolus* has only four funicular segments, a narrower head, and relatively weak development of the petiolar and postpetiolar spongiform appendages. The African *laticeps* has different mandibular structure and lacks spongiform appendages, except for vestiges on the postpetiole (Brown 1962, figs. 1-4). *E. hexamerus*, the Japanese species, is most like *murphyi*, but it differs in the nature and distribution of the vestiture, the structure of the antennal scapes, the mesonotal profile, and the form of the propodeal lamellae (Brown 1958, figs. 1-2). *E. murphyi* runs to *hexamerus* in Brown's 1962 key to the *Epitritus* species.

Dysedrognathus gen. n.

(Figs. 3, 4)

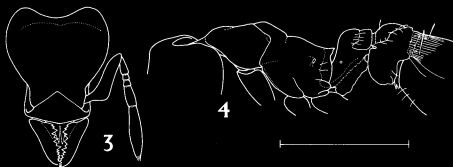
Type species: Dysedrognathus extemenus Taylor, sp. n. described below.

Diagnosis, worker. Subfamily Myrmicinae, tribe Dacetini. Close to *Epitritus* Emery 1869 (*sensu* Brown 1949), and falling within the scope of its diagnosis in all details except the mandibular structure, which is very different.

Mandibles fairly elongate-triangular (almost as long, relatively, as those of the *Epitritus* species), their inner and basal borders meeting at rounded angles of about 90°. Each with a small area (delimited by a dotted line in Fig. 3) at the junction of its median and posterior borders, the surface of which is roughly continuous with that of the adjacent part of the clypeus. Apart from this area the dorsal mandibular surface falls strongly away from the midline, at a slope of about 45° from the median sagittal plane of the head (when the jaws are closed). In lateral view the anterodorsal profile of each mandible is almost exactly coincident with its median border, and is strongly downcurved apically, to meet the almost horizontal line of the ventral profile. The median borders each bear a somewhat irregular series of small teeth, which diminish in size apicad, and which engage directly only at the downcurved tips of the jaws. The apposable preapical teeth are reduced to small denticles, which could be homologous with those of the inverted mandibular apices in the *Epitritus* species. The most apical denticle of each jaw is slightly enlarged, but there is no enlarged tooth interrupting the graded series between the basal teeth and the preapical denticles (i.e. a tooth possibly homologous with the spine-like subapical one seen in the *Epitritus* species apart from *laticeps*). The labrum is *Epitritus*-like, with a pair of long apical lobes.

The post-mandibular habitus of *D. extemenus* is like that of the *Epitritus* species, especially *E. argiolus*. The cephalic proportions resemble those of *argiolus*, though the cranium is more prismatic posteriorly (due mainly to the well developed transverse pre-occipital ridge, which resembles that of *E. murphyi*). The antennal funiculi are 5-segmented, like those of the extra-European *Epitritus* species. The mesosoma resembles that of *E. argiolus*, though the pronotum is differently moulded and more angular, and the mesonotum is smaller and less distinctly inflated.

The petiole, postpetiole and gaster are also constructed like those of *E. argiolus*, but the development of spongiform material on the waist segments is much more extensive and massive, resembling that of



FIGS. 3, 4.—*Dysedrognathus extemenus* Taylor, gen. et sp. n., holotype worker: (3) head, frontal view, right antenna and pilosity omitted; (4) mesosoma, petiole and postpetiole, lateral view. Scale line 0.50 mm.

E. murphyi, which has the maximum development in *Epitritus* (see Figs. 2 and 4). The characters of colour, sculpture and vestiture fall within the broad limits covered by variation among the *Epitritus* species.

Comments

The general similarity between *Dysedrognathus* and *Epitritus*, in features apart from their characteristically distinctive mandibles, is so marked that close phylogenetic relationship between the two genera may be reasonably inferred. Indeed, *D. extemenus* would be a perfectly acceptable *Epitritus*, were it not for its peculiar mandibles. The relatively slight inflation of the mesonotum would be notable in an *Epitritus*, but the other post-mandibular characters of the species would not be unusual. Expansion and inflation of the mesonotum is typical among the *Epitritus* species, and this character is less marked in *E. argiolus* than in its congeners. Notwithstanding, the relatively slight mesonotal development of *Dysedrognathus* exceeds that of other, probably related, strumigenite genera (notably *Trichoscapa*, a more conservative genus which could be closely related to *Dysedrognathus*). However, the discontinuity of mandibular structure between *D. extemenus* and the *Epitritus* species is very marked, and separation of the two genera on the basis of mandibular differences is, in my opinion, very reasonable. It may be convincingly demonstrated by consideration and comparison of the figures published here, and those of Emery (1869, 1917) and Brown (1958, 1962).

Dysedrognathus might eventually be found to include species with characters seen in *Epitritus*, but not in *D. extemenus*, for example 4-segmented antennal funiculi, bizarre scapes, expansive occipital lobes, and reduced petiolar and post-petiolar spongiform masses etc.

Dysedrognathus extemenus sp. n.

(Figs. 3, 4)

Types.—This description is based on the holotype and a single paratype, both workers, collected together. They bear the following data: SINGAPORE: Bukit Timah Nature Reserve, leafmould on granite, degraded coastal hill forest, 8.iii.1965 (D. H. Murphy, berlesate No. B45).

Type deposition.—*Holotype* in Australian National Insect Collection (Type No. 7506), *paratype* in Museum of Comparative Zoology, Cambridge, Massachusetts, U.S.A.

Description

The holotype and paratype have the following dimensions (for code of abbreviations and definitions of measurements see Brown 1953: 7-15). TL ca 1.85, 1.85 mm; HL 0.45, 0.46 mm; HW 0.40, 0.41 mm; CI 89, 89; ML 0.17, 0.17 mm; MI 38, 37; WL 0.52, 0.52 mm; scape *L* ca 0.24, 0.24 mm (about 0.18 mm from subbasal angle to apex in both specimens).

General features as shown in figures. Cranium prismatic behind, traversed by a strong pre-occipital ridge (shown as a dotted line in Fig. 3), which forms an angle of about 100° in side view. Clypeal dorsum and anterior part of frons almost flat. Frontal and lateral cranial surfaces otherwise generally convex, except for a small, very feebly concave area on each side of the midline, immediately in front of the pre-occipital ridge. Area behind pre-occipital ridge essentially plane. Mandibles as described above in generic diagnosis; each with about 22 teeth, including approximately 10 preapical denticles. Antennae as figured.

Pronotal dorsum flat to feebly concave, margined anteriorly and laterally by an angular border; posterolateral corners slightly raised and expanded laterally; sides sub-parallel in dorsal view, the humeri and posterolateral corners approximately rectangular. Maximum width of pronotum slightly more than half that of head. Mesometanotal suture incised on sides of mesosoma only to level of anterior spiracles; represented on dorsum by a feebly indented trace. Anterior portion of mesonotal dorsum inflated, almost hemispherical, rising abruptly from pronotal dorsum and about half as wide as pronotum. Posterior portion cuneate, narrowed posteriorly, separated from anterior part by a very faint depression. Propodeal spines sub-parallel in dorsal view, each diverging from midline by about 10°. Profiles of petiole and postpetiole as shown in Figure 4; spongiform appendages massively developed. Petiolar dorsum (excluding spongiform material) about as wide as long, about half as wide as pronotum, and slightly more

than half as wide as postpetiole. The latter 0.6x as long as wide and about 0.6x as wide as gaster. Petiolar penduncle notably slender in dorsal view, about 0.35x as wide as node.

Head and most of mesosoma appearing granulosely sculptured, actually minutely reticulate, more coarsely so on head than elsewhere. Disc of pronotum more or less smooth with traces of microreticulation at edges. Mandibles irregularly and finely granulose-punctate; antennae finely shagreened; legs microreticulate, slightly less coarsely so than mesepisternum. Petiole sculptured like legs, a little less distinctly on its dorsum than elsewhere. Postpetiole and gaster smooth and shining, first gastral tergite with coarse basal longitudinal costulation extending about $\frac{1}{4}$ its length.

Clypeus, anterior part of frons, and antennal scapes with scattered small, appressed orbicular hairs (ca 0.01-0.02 mm long, spaced at intervals averaging about 0.015 mm); similar hairs much less abundant on sides of frons. Ventral surface of head, area behind pre-occipital ridge, sides and dorsum of pronotum, mesonotal dorsum, petiolar node, postpetiolar dorsum and legs with scattered appressed unspecialized hairs ca 0.02 mm long, those on waist segments generally overlying the edges of their spongiform masses. First gastral tergite with two transverse rows of four linear-spatulate hairs averaging about 0.06 mm in length; one row anterior, the other posterior. Second and third gastral tergites together with about 10 similar hairs, one transverse row on each sclerite; a few slightly shorter hairs clustered at tip of gaster and scattered on its ventral surface. Appressed pubescence almost entirely restricted to antennal funiculi. Colour medium ferruginous, head and mesosoma slightly darker than remainder; vestiture white.

REFERENCES

- BROWN, W. L., JR. (1948).—A preliminary generic revision of the higher Dacetini (Hymenoptera: Formicidae). *Trans. Am. ent. Soc.* **74**: 101-129.
- BROWN, W. L., JR. (1949).—Revision of the ant tribe Dacetini: III. *Epitritus* Emery and *Quadristruma* new genus (Hymenoptera: Formicidae). *Trans. Am. ent. Soc.* **75**: 43-51.
- BROWN, W. L., JR. (1953).—Revisionary studies in the ant tribe Dacetini. *Am. Midl. Nat.* **50**(1): 1-137.
- BROWN, W. L., JR. (1958).—A new Japanese species of the dacetine ant genus *Epitritus*. *Mushi* **31**(8): 69-72.
- BROWN, W. L., JR. (1962).—A new ant of the genus *Epitritus* from south of the Sahara. *Psyche, Camb.* **69**(2): 77-80.
- BROWN, W. L., JR. and E. O. WILSON (1959).—The evolution of the dacetine ants. *Q. Rev. Biol.* **34**(4): 278-294.
- EMERY, C. (1869).—Formicidarum Italicorum species duae novae. *Bull. Soc. ent. Ital.* **1**: 135-137.
- EMERY, C. (1917).—Fauna entomologia Italiana. I. Hymenoptera-Formicidae. *Bull. Soc. ent. Ital.* **47**: 79-275.